DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
Office of Structural Materials
Quality Assurance and Source Inspection

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Contract #: 04-0120F4
Cty: SF/ALA Rte: 80 PM: 13.2/13.9
File #: 1.28

WELDING INSPECTION REPORT

Resident Engineer: Casey, William
Address: 333 Burma Road
City: Oakland, CA 94607

Report No: WIR-026816
Date Inspected: 05-Dec-2011

Project Name: SAS Superstructure
Prime Contractor: American Bridge/Fluor Enterprises, a JV
Contractor: American Bridge/Fluor Enterprises, a JV

OSM Arrival Time: 700
OSM Departure Time: 1730
Location: Job Site

CWI Name: Fred Von Hoff and Bernie Docena

CWI Present:	☑ Yes	☐ No					
Inspected CWI report:	☐ Yes	☑ No	☐ N/A	**Rod Oven in Use:**	☑ Yes	☐ No	☐ N/A
Electrode to specification:	☑ Yes	☐ No	☐ N/A	**Weld Procedures Followed:**	☑ Yes	☐ No	☐ N/A
Qualified Welders:	☑ Yes	☐ No	☐ N/A	**Verified Joint Fit-up:**	☐ Yes	☐ No	☑ N/A
Approved Drawings:	☑ Yes	☐ No	☐ N/A	**Approved WPS:**	☑ Yes	☐ No	☐ N/A
				Delayed / Cancelled:	☐ Yes	☑ No	☐ N/A

Bridge No: 34-0006
Component: SAS OBG

Summary of Items Observed:

Caltrans Office of Structural Material (OSM) Quality Assurance Inspector (QAI) Joselito Lizardo was present at the Self Anchored Suspension (SAS) job site as requested to perform observations on the welding of components for the San Francisco Oakland Bay Bridge (SFOBB) Project.

At OBG 14E-PP125-E4-#2 lifting lug hole infill plate to top deck plate inside, ABF welder Erick Sparks was observed continuing to perform 4G Shielded Metal Arc Welding (SMAW) back welding fill pass to cover pass on the infill plate to top deck plate butt joint. The welder was noted using 1/8" diameter E7018H4R implementing Welding Procedure Specification (WPS) ABF-WPS-D15-1110A Rev.1 for the Seismic Performance Critical Member (SPCM) butt joint. Prior back welding, ABF QC Bernie Docena was observed performing Magnetic Particle Testing (MT) on the ground surface of the back gouging with positive result. During welding, ABF QC Bernie Docena was noted monitoring the welder's welding parameters with measured working current of 128 amperes on the 1/8" diameter E7018H4R electrode. The welder was noted preheating the plates to more than 150°F using propylene gas torch prior welding. During the shift, cover pass welding on the bottom side location of the butt joint was completed and the welder has moved to another lifting lug hole OBG 14E-PP125-E4-#1 and performed 4G SMAW welding repair.

At OBG 14E-PP125-E4-#1lifting lug hole infill plate to top deck plate inside, QA randomly observed ABF/JV qualified welder Erick Sparks perform CJP groove welding repair. The welder was observed welding in the 4G (overhead) position utilizing Shielded Metal Arc Welding (SMAW) with 1/8" diameter E7018H4R electrode implementing welding procedure ABF-WPS-D15-1004-Repair for the Seismic Performance Critical Member (SPCM) butt joint. Prior the repair excavation, the weld butt joint and adjacent base metal were preheated to more

than 225 degrees Fahrenheit using propane gas torch. After the excavation and subsequent smooth grinding, ABF QC Bernie Docena was observed performing Magnetic Particle Testing (MT) on the boat shape excavations which were located at Y=70mm and Y=290mm.There were no significant defects noted during the test. The two excavations were having dimensions of 70mm long x 20mm wide x 7mm deep and 50mm long x 16mm wide x 7mm deep respectively. The excavations and adjacent base metal were again preheated to more than 325 degrees Fahrenheit prior welding. ABF QC Bernie Docena was noted monitoring the welder at the time of the repair. Both repair excavations were completed before the end of the shift and both repairs were Post Weld Heat Treated (PWHT) at 450 degrees Fahrenheit for one (1) hour as required using the Miller Proheat 35 Induction Heating System.

At OBG 14E-PP126.7-E2.5 vent hole infill plate to top deck plate outside, QA randomly observed ABF/JV qualified welder Rick Clayborn perform CJP groove welding repair. The welder was observed welding in the 1G (flat) position utilizing Shielded Metal Arc Welding (SMAW) with 1/8" diameter E7018H4R electrode implementing welding procedure ABF-WPS-D15-1004-Repair for the Seismic Performance Critical Member (SPCM) butt joint. Prior the repair excavation, the weld butt joint and adjacent base metal were preheated to more than 225 degrees Fahrenheit using propane gas torch. After the excavation and subsequent smooth grinding, ABF QC Fred Von Hoff was observed performing Magnetic Particle Testing (MT) on the boat shape excavation which was located at Y=150mm and was having dimensions of 55mm long x 20mm wide x 5mm deep with no significant defects noted during the test. The excavation and adjacent base metal were again preheated to more than 325 degrees Fahrenheit using propylene gas torch prior welding. ABF QC Fred Von Hoff was noted monitoring the welder at the time of the repair. The repair excavation was completely welded during the shift and Post Weld Heat Treated (PWHT) at 450 degrees Fahrenheit for one (1) hour as required using the Miller Proheat 35 Induction Heating System.

At OBG 13E/14E bottom plate 'D1' outside, QA randomly observed ABF/JV qualified welder Wai Kitlai perform CJP groove welding repair. The welder was observed welding in the 4G (overhead) position utilizing Shielded Metal Arc Welding (SMAW) with 1/8" diameter E7018H4R electrode implementing welding procedure ABF-WPS-D15-1004-Repair for the Seismic Performance Critical Member (SPCM) butt joint. The repair excavations were preheated to more than 325 degrees Fahrenheit using Miller Proheat 35 Heating Induction System with blanket located at the opposite side of the weld joint being welded. During the shift, ABF QC Fred Von Hoff was noted monitoring the welder with 130 amperes measured current on the 1/8" diameter E7018H4R electrode. The following first time repairs were noted excavated and being repaired when fellow QA Craig Hager took over the observations for the welding work;

	Location	Y-dimension	Length	Width	Depth	Remarks
1.	13E/14E bot. plate 'D1'	2070mm	165mm	30mm	20	In progress
2.	13E/14E bot. plate 'D1'	2990mm	130mm	30mm	16	Excavated

At the request of Quality Control Field Supervisor, Bonifacio Daquinag, QA has randomly verified the QC VT/MT of the Complete Joint Penetration (CJP) welding of two (2) longitudinal stiffeners splice butt joints. The QA verification was performed to verify that the welding and the VT/MT inspection performed by the QC inspector meet the requirements of the contract documents. At the conclusion of the QA verification it appeared that the weld and the QC inspection did not comply with the contract documents.

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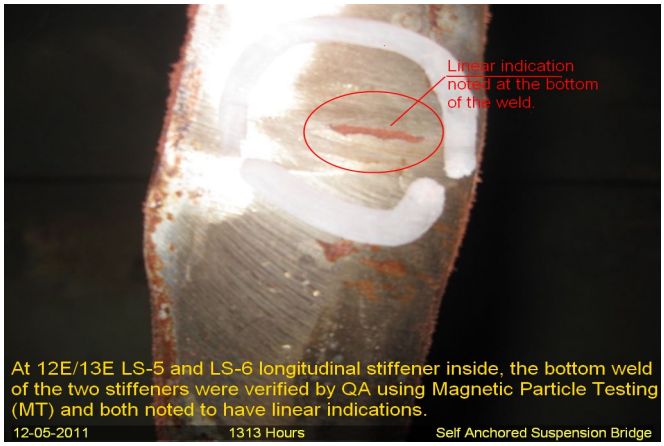
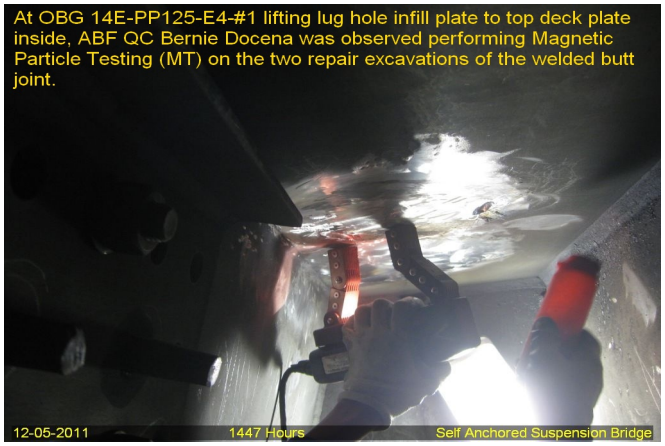
1. OBG 12E/13E LS5 longitudinal stiffener – QA reject due to linear indication at the bottom of the weld.
2. OBG 12E/13E LS6 longitudinal stiffener – QA reject due to linear indication at the bottom of the weld





Summary of Conversations:

No significant conversation ocurred today.

Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact SMR Nina Choy 510-385-5910, who represents the Office of Structural Materials for your project.

Inspected By:	Lizardo,Joselito	Quality Assurance Inspector
Reviewed By:	Levell,Bill	QA Reviewer